

REMARKS

Applicant has carefully considered the Office Action, and respectfully submits that the subject application is now in condition for allowance based upon the following remarks.

Status of Claims

The subject application was originally filed with 29 claims. In a Preliminary Amendment dated December 13, 2005, Applicant cancelled claims 1-29 and added new claims 30-58. In a prior Amendment, Applicant cancelled claims 33 and 47. In a second prior Amendment, Applicant amended claims 30, 42, and 56. In a third prior Amendment, Applicant amended claims 30, 36, 42, 51, and 56. Claims 30-32, 34-46, and 48-58 remain pending in the subject application.

Summary of Office Action

In the Office Action dated April 1, 2009, the Examiner:

- 1) rejected claims 30-32, 34-40, 42-44, 46, 48-52, and 55-57 under 35 U.S.C. § 103(a) as being unpatentable over GB 2,265,959 issued to Pardy ("Pardy") in view of U.S. Patent No. 5,518,034 issued to Ragout et al. ("Ragout"); and
- 2) rejected claims 34, 41, 45, 53, 54, and 58 under 35 U.S.C. § 103(a) as being unpatentable over Pardy in view of Ragout and further in view of U.S. Patent No. 6,176,147 issued to Ozeki ("Ozeki").

35 U.S.C. § 103(a) Rejection of Claims 30-32, 34-40, 42-44, 46, 48-52, and 55-57 Based on Pardy in View of Ragout

As discussed above, claims 30-32, 34-40, 42-44, 46, 48-52, and 55-57 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Pardy in view of Ragout. For at least the following reasons, Applicant traverses this rejection.

Independent claims 30, 42, and 56, as amended, each recite "an elongate flexible damping hose... responsive to impulsive or vibrational pressure to deform and restore locally changing the shape of the cross-section" and has a peripheral wall that "deforms under the impulsive or vibrational pressure disturbances towards, but not reaching a circular cross section." (Emphasis added.) Claims 30, 42, and 56 further recite that "the hose has a wall construction including interwoven strands configured to be displaced relative to each other during

deformation of the cross-sectional shape of the hose and to absorb deformation energy as frictional loss between the strands.” The Office asserts that Pardy teaches an elongate flexible damping hose having walls that deform in response to impulsive or vibrational pressure disturbances. (Office Action, p. 2.) The Office acknowledges that Pardy does not disclose a wall construction of interwoven strands and instead relies on Ragout to supply this teaching.

However, Ragout fails to cure this defect for several reasons. First, there is no disclosure in Ragout that the hose “has a wall construction including interwoven strands configured to be displaced relative to each other during deformation of the cross-sectional shape of the hose and to absorb deformation energy as frictional loss between the strands.” The principal reinforcing layer (5) as depicted in Fig. 3 is provided by corded plies which may be metal or aromatic polyamide cords which are laid at particular angles so as to maintain the normal dimensions of the hose when functioning normally and prior to failure. There is no discussion as to the corded plies of the layer (5) moving relative to each other so as to absorb pressure disturbances by dissipation of frictional energy as recited in independent claims 30, 42, and 56.

Moreover, Ragout teaches away from “an elongate flexible damping hose... responsive to impulsive or vibrational pressure to deform and restore locally changing the shape of the cross-section.” Instead, the purpose of Ragout is to produce a hose which exhibits a visual indication of when the hose has failed or is about to fail. (See Abstract.) After the hose fails (or is about to fail), it does not restore its shape, but instead its deformation provides visual indication of a section that needs to be replaced. (See col. 1, lines 33-34). The different cross-sectional areas such as are exemplified in Fig. 2 by increased cross-sectional areas at regions “C,” reduced cross-sectional areas at regions “A” and constant cross-sectional areas at regions “B,” are areas of different cross-sections which occur when failure of the hose has occurred. The type of failure of the hose is by leakage of the contained fluid (in this case oil from an offshore platform to a distant loading area (col. 1, lines 13 to 16) leaking between the various layers of the hose as shown and described with reference to Fig. 3. That the regions of different cross-sectional areas are related to and caused by internal leaks within the hose is confirmed by the paragraph bridging columns 2 and 3.

Further, after the hose of Ragout deforms, it is not responsive to impulsive or vibrational pressure. Indeed, Ragout teaches that a hose whose radial expansion is proportional to the leak

pressure of the fluid is undesirable, because if there is a small hole in the reinforcement, “the resulting radial expansion is on only a fraction of the maximum expansion, and therefore it becomes more difficult to detect a failure if the failure is relatively minor.” (Col. 1, lines 55-67.)

Additionally, when the hose of Ragout is functioning normally it is of circular cross-sectional shape and has a constant cross-sectional area along its entire length as shown in Fig. 1. Ragout states:

Such corded plies [referring to principal reinforcement layer 5] could preferably be metal cord or aromatic polyamide cords, and can be oriented at a laying angle close to the equilibrium angle, which makes it possible to keep the dimensional characteristics of the flexible hose exposed to the service pressure (Ps) constant.

(Col. 6, lines 53-57.) Thus, it is clear that the hose exemplified in Fig. 1, the construction of which is shown in Fig. 3 has a constant circular cross-sectional shape. Furthermore, no mention is made in Ragout of pressure disturbances or fluctuations other than those caused by a leak pressure within the hose itself and which causes the ballooning shown at regions “C” and the contractions shown at regions “A.”

Pardy also teaches away from a combination with Ragout. Pardy is directed to a fuel pipe that deforms to absorb energy. (Abstract.) There is no suggestion in Pardy that the fuel tube 32 should be encased in anything other than the resilient rubber-like sheath 34 or be left as a plain extruded plastics tube with no further reinforcement at all as is described in that reference. In fact, if the structure of Ragout were employed with Pardy, the tube 32 would only deform when the tube failed and Pardy would become non-functional.

MPEP § 2145 states that “it is improper to combine references where the references teach away from their combination.” (Citing In re Grasselli, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983)). Further, a “prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention.” (MPEP § 2142.02 (citing W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983))). In the present case, Pardy and Ragout as a whole teach away from their combination. Ragout, in particular, by describing a high-pressure washer that is substantially non-deforming, leads away from the claimed invention. For at least this reason, the obviousness rejection based on the combination of Pardy and Ragout should be withdrawn.

For at least the foregoing reasons, the 35 U.S.C. § 103(a) rejection to claims 30, 42, and 56 is unsupported and should be withdrawn. Further, claims 31-32, 34, 35, 37-40, 43-44, 46, 48-50, 52, 55, and 57 depend either directly or indirectly from the independent claims and incorporate each and every element of the respective independent claims. For at least the reasons discussed above, the rejection to claims 31-32, 34, 35, 37-40, 43-44, 46, 48-50, 52, 55, and 57 should also be withdrawn.

Additionally, claims 36 and 51 recite, “in the absence of fluid pressure the first wall parts are arranged to contact each other and fluid passageways remain adjacent the second wall parts.” The Office asserts that Ragout discloses this in Fig. 4a. Applicant respectfully disagrees. Fig. 4a (and Fig. 4) are clearly described in the relevant portions of columns 3 and 4 under “Brief description of the drawings” as showing “a ‘peeled away’ view of one embodiment of a flexible hose in accordance with the present invention including a schematic diagram of the laying angles of the plies of the safety reinforcement layer, in a radial expansion zone and in a connecting zone;” and Fig. 4a “shows a view similar to that of Fig. 4 but also includes a compensation zone and shows, diagrammatically, the second ply of the pair of plies of the safety reinforcement layer.” Furthermore, column 9, lines 40 to 46 states:

Figs. 4 and 4a show “peeled back” views of the wall of one embodiment of a flexible hose in accordance with the present invention. Each of these figures illustrates the orientation of the intersecting plies of the safety reinforcement (9), in the radial expansion zones (C), the dimensionally invariant zones (B), the radial contraction zones (A) and the connecting zones (D).

The meaning of “peeled back” merely means that Figs. 4 and 4a are views of the hose (1) having the peripheral covering layer (12) and the intermediate lifting lining (11) peeled away so that the underlying safety reinforcement (9) may be seen. There is no indication whatsoever in Ragout that Figs. 4 and 4a indicate that the walls of the hose contact each other in the absence of pressure and appears to be a figment of the Examiners imagination.

Further, claims 37 and 50 each recite “the peripheral wall has a shape defining a generally elliptical cross-section.” The Office asserts that Pardy discloses a generally elliptical cross-section in Figure 4. Applicant respectfully disagrees. Figure 4 of Pardy shows “a tube 32c of flat cross-section.” (Pardy, p. 3, lines 14-16.) A flat tube cannot be fairly described as a generally elliptical cross-section. As one of ordinary skill in the art would understand, an ellipse

is a known geometric shape that is distinct from a flat tube. For at least this additional reason, the combination of Pardy and Ragout fail to disclose each and every element of claims 37 and 50, and their rejection should be withdrawn.

35 U.S.C. § 103(a) Rejection of Claims 34, 41, 45, 53, 54, and 58 Based on Pardy in View of Ragout and Further in View of Ozeki

As discussed above, claims 34, 41, 45, 53, 54, and 58 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Pardy in view of Ragout and further in view of Ozeki. For at least the following reasons, Applicant traverses this rejection.

claims 34 and 41 depend directly from independent claim 30 and incorporate by reference all of the elements from this claim, the combination of Pardy, Ragout, and Ozeki fails to disclose or suggest each and every element recited by claims 36 for the same reasons as discussed above with respect to independent claims 30 in view of Pardy and Ragout.

Because claims 45, 53, and 54 depend directly from independent claim 42 and incorporate by reference all of the elements from this claim, the combination of Pardy, Ragout, and Ozeki fails to disclose or suggest each and every element recited by claim 51 for the same reasons as discussed above with respect to independent claims 42 in view of Pardy and Ragout.

Because claim 58 depends directly from independent claim 56 and incorporates by reference all of the elements from this claim, the combination of Pardy, Ragout, and Ozeki fails to disclose or suggest each and every element recited by claim 51 for the same reasons as discussed above with respect to independent claims 56 in view of Pardy and Ragout.

For at least these reasons, the 35 U.S.C. § 103(a) rejection with respect to claims 34, 41, 45, 53, 54, and 58 are unsupported and should be withdrawn.

Additionally, claims 41, 45 and 58 relate to the flexible damping hose being mounted on the actuator. The Office specifically refers to the hose 54 which delivers hydraulic fluid and is disposed along a rack casing 22 (these being shown in Fig. 5 of Ozeki). However, as recited in the independent claims, the hose is a flexible damping hose largely comprising non-metallic materials in at least the hydraulic fluid carrying part thereof. In claims 41, 45, and 48, the damping hose is attached as a separate entity to a steering rack. In Ozeki, the pipe 54 is presumably a metal pipe since as column 3, lines 40 to 43 point out, the pipe 54 is “incorporated

integratedly by a casting” (into the steering rack 22). Therefore, the pipe 54 of Ozeki is metal and cannot operate as a hydraulic damping hose.

For at least this additional reason, the 35 U.S.C. § 103(a) rejection with respect to claims 41, 45 and 58 are unsupported and should be withdrawn.

Conclusion

In view of the remarks above, it is believed that claims 30-32, 34-46, and 48-58 are in condition for allowance and notice to such effect is respectfully requested. If the Examiner thinks a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned at the phone number provided below.

If any fees are due in connection with this Amendment, the Commissioner is authorized to charge Deposit Account No. 02-2051, specifically identifying Docket No. 29390-1.

Respectfully submitted,

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